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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,369	10/16/2007	Uri Banin	BANIN4B	9217
1444	7590	03/05/2012		
Browdy and Neimark, PLLC			EXAMINER	
1625 K Street, N.W.			DULKA, JOHN P	
Suite 1100				
Washington, DC 20006			ART UNIT	PAPER NUMBER
			2895	
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			03/05/2012	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/588,369	BANIN ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	JOHN P. DULKA	2895	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 22 September 2011.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) An election was made by the applicant in response to a restriction requirement set forth during the interview on \_\_\_\_\_; the restriction requirement and election have been incorporated into this action.
- 4) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 5) Claim(s) 59-62,65,67-74,81-84,86 and 89-101 is/are pending in the application.
  - 5a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 6) Claim(s) 59-62,65,67-74,81,82,86, 89-91 and 101 is/are allowed.
- 7) Claim(s) 92-96 and 98 is/are rejected.
- 8) Claim(s) 83, 84, 97, 99 and 100 is/are objected to.
- 9) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 10) The specification is objected to by the Examiner.
- 11) The drawing(s) filed on 04 August 2006 is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ .                                    |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ .  | 6) <input type="checkbox"/> Other: _____ .                        |

## **DETAILED ACTION**

### ***Status of Application***

Examiner acknowledges changes to claims as per amendment filed 22 September, 2011.

Pending claims 59-62, 65, 67-74, 81-84, 86 and 89-101.

Claims 59-62, 65, 67-74, 81, 82, 86, 89-91 and 101 are allowable.

Claims 92-96 and 98 are rejected over prior art.

Claims 83, 84, 97, 99 and 100 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Examiner notes that in the Office-Action-Summary in all prior office actions examiner has incorrectly marked the Foreign Priority boxes number 12 when in fact there is no Foreign Priority data and instead only Continuation data.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 92-96 and 98 are rejected under 35 U.S.C. 102(b) as being anticipated by Banin in WO 03/097904 A1.

In re claim 92, Banin anticipates; a nanostructure having at least one elongated structure element of a first material (**III-V semiconductor**) **Fig. 1 pg. 12-13**, wherein each of said

elongated structure elements has an end portion, and wherein at least one of said end portions bears a nanozone of a second material (**M**) Fig. 1 pg. 13 ln. 9-16) that differs from said first material in at least one property selected from the group consisting of electrical conductivity, chemical reactivity and composition, wherein at least one of the first and second materials is a semiconductor material (**III-V semiconductor versus M**) Fig. 1 pg. 12-13, and wherein the second material is in direct contact with the first material as illustrated in Fig. 1.

In re claim 93, Banin anticipates; wherein said first material is a semiconductor material (**III-V semiconductor**) Fig. 1 pg. 12-13 and said second material is a metal or metal alloy (**M**) Fig. 1 pg. 13 ln. 9-16).

In re claim 94, Banin anticipates; wherein said second material is a semiconductor material (**In**) Fig. 1 pg. 13 ln. 11 and pg. 6 ln. 9-18.

In re claim 95, Banin anticipates; wherein said first and second materials are each a semiconductor material selected from the group consisting of Group II-VI semiconductors, Group III-V semiconductors (**III-V semiconductor: first material**) Fig. 1 pg. 12-13, Group IV-VI semiconductors, Group IV semiconductors, alloys made of these semiconductors, combinations of the semiconductors in composite structures and core/shell structures of the above semiconductors pg. 5 ln. 12-14 there is Group III-V for second material.

In re claim 96, Banin anticipates; wherein said Group II-VI semiconductors are alloys selected from the group consisting of CdSe, CdS, CdTe, ZnSe, ZnS, ZnTe, and combinations thereof **(CdSe) pg. 25 ln. 11-30 and pg. 5 ln. 25-pg. 6 ln. 2.**

In re claim 98, Banin anticipates; a solution comprising a plurality of nanostructures according to claim 92 **pg. 8--letter (a) and point (i) there is a solution.**

***Response to Arguments***

Examiner notes that the new independent claim number 92 is anticipated by the old prior art reference of Banin used throughout previous office actions.

Please refer to section of ‘Allowable Subject Matter’ below.

***Allowable Subject Matter***

Claims 59-62, 65, 67-74, 81, 82, 86, 89-91 and 101 are allowable.

The following is a statement of reasons for the indication of allowable subject matter:

Examiner agrees with applicant’s arguments filed 22 September, 2011 with respect to the method claims in that the Banin reference never teaches of a solution with elongated structure elements consisting only of one material. The Banin reference would always have a starter-metal attached. Examiner believes the newly amended method claims clearer define over the Banin reference.

Because the Banin reference teaches of a method of making the nanostructure examiner believes the following limitations in combination with the rest of the device limitation claims are not taught, rendered obvious, rendered obvious to try or taught by the closest prior art of record:

- a. A branched structure.
- b. The actual attachment of second material nanozones on each/all ends of the nanostructure. Banin reference would have only one end because the starter-metal is on only one end for the growing process.
- c. Linking a plurality nanostructures together through the nanozone.
- d. Along with the rest of each independent claim's limitaitons.
- e. Claims 83, 84, 97, 99 and 100 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

**Examiner notes, with respect to points a-c that this is the actual device structure and not the “capability” of the structure to be able to be connected on both sides.**

**In previous claim-sets the capability of the nanostructure to be attached at all ends by nanozones or other nanostructures is claimed.**

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOHN P. DULKA whose telephone number is (571)270-7398. The examiner can normally be reached on Mon-Thurs: 7:30am-5:00pm; Fri: 7:30am-4:00pm. Every other Friday Off. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, N. Drew Richards can be reached on (571)-272-1736. The fax phone number for the organization where this application or proceeding is assigned is (571)-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

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like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or (571)-272-1000.

02/27/2012

/J. P. D./

Examiner, Art Unit 2895

/N. Drew Richards/

Supervisory Patent Examiner, Art Unit 2895